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ABSTRACT

Exercises are provided in this set of four workbooks designed to aid students in environmental studies programs in building vocabulary and reading skills. Each workbook borrows from the vocabulary of environmental sciences to provide explanations and exercises for a sequential series of instructional objectives. One workbook concentrates on developing the ability to determine word meanings through contextual inference. Exercises in this booklet are designed to demonstrate the variety of meanings a word can have in various contexts and to caution students about the limitations of using context clues to determine word meaning. Another workbook helps students recognize and define suffixes and prefixes common in environmental science terminology. Special emphasis is placed on using word parts to define words with which students may not be familiar. A third workbook presents exercises which help the student make efficient use of the dictionary, by reinforcing the student's understanding of alphabetical order and of the components of a dictionary entry. The fourth workbook discusses and illustrates learning strategies to be used by the student in mastering technical vocabulary encountered in reading assignments. Accompanying the exercises in these four workbooks are pre- and post-tests designed to help students assess their progress in relation to each of the instructional objectives covered. (JP)

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PERSONAL ACHIEVEMENT

READING

Environmental Studies

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Fund for the Improvement of Postsecondary Education

JC 800 600

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CURRICULUM MATERIALS DEVELOPED

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1977

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personal achievement

READING

Clues to Word Meaning

CLUES TO WORD MEANING - ENVIRONMENTAL OCCUPATIONS

		Page
OBJECTIVE 1:	Select the appropriate meaning for ten words, according to the context in which the words are used	2
	Self Post-Test	5
OBJECTIVE 2:	Determine the meaning of eight of ten given words by using context clues	6
	Self Post-Test	8
OBJECTIVE 3:	Determine the meaning of nine out of ten given words by using definition clues	10
	Self Post-Test	11
OBJECTIVE 4:	Determine the meaning of nine out of ten given words by using example clues	14
	Self Post-Test	15
OBJECTIVE 5:	Determine the meaning of nine out of ten given words by using contrast clues	18
	Self Post-Test	20
OBJECTIVE 6:	Determine the meaning of ten given words by using inference clues	22
	Self Post-Test	23
OBJECTIVE 7:	(1) Identify reference (pronoun) clues and (2) identify the referents of pronouns in nine out of ten given sentences	25
	Self Post-Test	25
OBJECTIVE 8:	Name two limitations of using context clues in determining word meaning	29
	Self Post-Test	30

CLUES TO WORD MEANING

By itself, a word does not have a clear, precise meaning. Suppose someone were to ask you the meaning of "field". You might not be able to answer because "field" as presented to you does not have a clear, definite meaning. But, if that person were to say "cornfield" you would immediately know he/she is talking about an area of land where corn is raised. If, on the other hand, soneone says, "Wow, he can really field that ball!" you would know that in this context "field" means to catch a ball.

The sentences or words surrounding a particular word are called the context. The context can give you the meaning not only of familiar words like "field", but also of new or difficult words. The writer frequently gives the meaning of a new word in the same paragraph or near by so that you don't have to go as far away as a dictionary or even a glossary to find definitions while you are reading.

In this unit you will work on the following:

(1) special meanings for commonly used words and

(2) getting meanings of words from the context.

As you learn these skills, you will enlarge your vocabulary and become a better reader.

OBJECTIVE 1

You will be able to select the appropriate meaning for ten common words, according to the context in which the words are used.

STRATEGY

A word may have more than one meaning. Its meaning depends on the way it is used. Take "hit" for example. A "hit" is what a baseball player gets if his bat connects with the ball; you can "hit" someone else (provided you're bigger than they are) or you can "be a hit" (popular, well received) if you do something everyone else admires.

A "hit" can also be a popular song, a new recipe or a movie--anything very successful. A teacher may only have time to "hit" the high spots in one class period; your father may "hit" the roof when you're late getting home, or a friend may "hit" you for a $5.00 loan.

Have you ever "hit" the books, "hit" the hay or better yet, "hit" the jackpot? The definition of "hit" all depends on the context it's used in.

A. You have seen and used all of the following words. Each word has many meanings, some of which we don't use as often as others. See how many different ways you can use each word. For example, use the word "stick":

1. A "stick" is a piece of wood.

2. You can "stick" (poke) someone in the ribs.
3. A nickname will often "stick" with a person as s/he grows older.
4. Would you care for a "stick" of gum?

There are many more meanings for "stick". Can you add others to this list?

Now try these. See how many different ways you can use each word.

1. set
2. book
3. pot
4. spring
5. bear

B. Here are some that are more difficult. They are words which have a special meaning in science and environmental health. See if you can think of at least two different meanings for each, then check your answers to see if one of them is a scientific definition. You may use a dictionary if necessary.

1. compound _____ _____
2. element _____ _____
3. mass _____ _____

4. volume _____ _____

5. matter _____ _____

As you read your class textbooks, watch for familiar words in unfamiliar ways.

When you have completed these definitions, see your instructor for a post-test covering them.

C. It is especially important to know the exact meanings of words when you are reading environmental health codes (such as housing codes, food codes, etc.). There is usually a list of definitions at the beginning of each code.

Terms are defined very specifically so there will be no confusion about the standards established by these codes. The general definition of the word in these cases is not enough.

What definitions would you usually give to the following words?

1. later ices _____

2. mix _____

Compare your definitions to the ones given in the Frozen Dessert Code of the Sanitarian's Handbook.

1. water ices: "frozen desserts prepared by freezing a mixture composed of two or more of the following . . .

2. mix: "the uniform combination of all important ingredients of a frozen dessert with or without fruits, fruit juices, confectioneries, nut meats, flavor, or harmless color."

Use the "U.S. Public Health Food Service Sanitation Ordinance" (located in Appendix A of this packet) to find the specific meanings of these words in that code. The first one is done for you.

	COMMON MEANING (your own words)	SPECIFIC MEANING (As defined in the Food Sanitation Code)
1. closed	shut tight	fitted together snugly leaving no openings large enough to permit the entrance of vermin.
2. person		
3. sealed		
4. kitchenware		
5. safe temperature		

When you have completed these definitions, see your instructor for a post test.

OBJECTIVE 2

You will be able to determine the meaning of at least nine (9) given words by using context clues.

STRATEGY

Not only does the context decide the meanings of familiar words, but it also gives you an idea of the meanings of words you don't know or haven't seen before.

Often you can tell the meaning of a word by reading the words around it. When you come to a new word read to the end of the sentence (or paragraph) to see if you can figure out the meaning.

EXAMPLE #1: glumpf (This is a made-up word. See if you can figure out its meaning.)

a. Fred is very good in glumpf.

(We don't know the meaning of this sentence because we don't know the last word. Go on to the next sentence.)

b. He was in glumpf league last summer.

(There are two clues given in this sentence. What are they?)

1) _____ 2) _____

c. He can throw a glumpf so slow that you can count the stitches.

(Glumpf hasn't changed; we've only surround it with different words.)

d. Last year he visited the Glumpf Hall of Fame in Cooperstown, New York.

(What is the new clue given here? _____)

e. From the clues given in the above sentences we know that glumpf means _____. (Fill in the blank.)

> REMEMBER: Think about all the words you know to see if you can figure out the words you don't know.

Now see if you can figure out the meaning of the underlined words in these sentences by using the context. The questions in parentheses will help you think through the process.

a. The deep-sea diver used a special searchlight to help him see in the murky waters.

(What would a deep-sea diver use a searchlight for?)

b. The balloon ascended to a height of six hundred feet.

(What would a balloon have to do to reach 600 feet?)

c. The fire was extinguished with a special kind of liquid foam.

(What might liquid foam do to a fire?)

murky means _____

ascended means _____

extinguished means _____

The examples above have the most obvious type of contextual clue--there can be no doubt about the meanings of the words. You only had to use common sense or recall an experience you have had or read about to decide the meanings. We know from experience how people and things act in a given situation. Consequently we can come close to figuring out the meaning of the word by looking at the situation (the whole sentence) and recalling what a logical outcome would be.

Here is another example of a common sense context clue. Can you tell what magnify means in the sentence below?

The microscope is of the utmost importance in the study of biology because it can magnify objects too small to be seen by the naked eye.

(What is a microscope used for? For enlarging or making things which are usually too small to be seen look bigger. Therefore, magnify means to make things look larger.)

Here are some "common sense" and "common experience" contexts. Each sentence contains a clue or clues to the meaning of the underlined word. Decide the meaning by using common sense or recalling some experience you know about, as in the examples above. Then choose the best meaning for the word according to the context.

____ 1. The basketball game was a fiasco, with our team scoring 21 points to their 104.

(a) success
(b) disaster
(c) challenge

____ 2. The heart attack victim was resuscitated through the use of mouth-to-mouth breathing.

(a) brought back to consciousness
(b) forced to lie down
(c) helped to his feet

____ 3. During those first confusing days, the thoughts of a new student at Kirkwood drift back to high school or home where she was "in", knew everyone and felt comfortable. A feeling of nostalgia sweeps over her.

(a) delight
(b) sadness
(c) homesickness

Although (b) is a possible answer, (c) is the best answer because it is more specific in terms of the sentences given here. As you can see, the context clue is sometimes in front of the word.

Use the context to determine the meanings of the following underlined words:

1. We had no use for our flashlights; the moon illuminated our path very clearly.

   illuminated means _____

2. I cannot tell you a secret unless you promise not to divulge it.

   divulge means _____

3. President Franklin D. Roosevelt died in 1945, and his wife in 1962; she survived him by seventeen years.

   survived means _____

4. Farmers will be in trouble unless the drought ends soon; it hasn't rained in six weeks.

   drought means _____

5. The speaker should have used a microphone. His voice was inaudible, except to those near the platform

   inaudible means _____

6. At one point during the hurricane, the winds reached a velocity of 130 miles an hour.

   velocity means _____

7. The hot rod race ended in a tie when Paul in "Blue Lightening" and Andy in the "Yellow Streak" crossed the finish line simultaneously.

   simultaneously means _____

Check your answers with the answer key. If you got 6 or more correct, go on to the next objective. If you missed more than one, see your instructor before you go on.

OBJECTIVE 3

You will be able to determine the meaning of nine (9) out of ten (10) given words by using definition clues.

STRATEGY

Sometimes authors realize they have used words you, the reader, may not know. In that case they may give an outright definition or explanation of its meanings to help you. In other words, a definition of a difficult word may be clearly stated in the same sentence or at least the same paragraph.

EXAMPLE #1: An ecologist, a scientist who specializes in the relationship between living things and their environment, is likely to have authoritative opinions on the problem of pollution vs. man's survival.

a. The definition (underlined twice) of ecologist is clearly "an expert on environmental relationships." Here the clue (the definition) is close to the word and is "signalled" by commas on each side of the definition. (Sometimes the word "or" is used as well as the commas.)

b. A definition or explanation clue is also often indicated by a form of the verb "to be" as in these examples (clues are underlined twice):

EXAMPLE #2: The development of the laser--that is, a device which concentrates high energies from radiation

into a narrow, sharply focused beam of light--has practical applications in medicine.

EXAMPLE #3: Indian paint brush is a type of showy herb that grows in the southwestern United States.

c. Sometimes a definition clue appears in the form of description. Again, a form of the verb "to be" is usually used.

> CAUTION: Be sure the description is a fairly precise one before you rely on it for a definition. This sentence, "A gazelle has four thin legs and is very nimble-footed," is too general and vague to be a definition.
>
> However, Example #4 is a more precise description, and therefore a good definition.
>
> EXAMPLE #4:
>
> The griffin was a mythological monster with an eagle's wings, head, beak and a lion's body, legs and tail.

In the following sentences use the definition clues to decide the meanings of the underlined words. Then write those meanings on the blank lines.

1. The biotic community includes the plant and animal life within an area.

_____

_____

2. "We must all soon learn how to compute in the metric system which is a decimal system of weights and measures universally used in science."

_____

3. Hydraulics is the name given to that branch of science which deals with fluids at rest and in motion.

_____

4. The precise meaning of the term head is the amount of energy possessed by a unit quantity of water at its given location.

_____

5. Filtration is the process of removing suspended matter from water as it passes through beds of porous material.

_____

6. The effectiveness of filtration is monitored by measurment of turbidity, a light-scattering property of particles suspended in water.

_____

7. One of the commonly used forms of chlorine is calcium hypochlorite.

_____

8. One clue is given by metabolism tests which measure the rate at which the chemical and physical processes in the body are carried on and at which energy is produced and utilized.

---

9. Yet science has solved many difficult problems and this is surely a problem of great interest to all of us. As good a way as any to start on the puzzle is to make a sort of guess, a hypothesis, as to how the sun's family might have begun and to see how it works.

---

10. Corrosion is commonly defined as an electrochemical reaction in which an object deteriorates or is destroyed when in contact with elements of its environment such as air, water, or soil.

How did you do? If you missed more than one, check with your instructor. Otherwise, go on to the next objective.

OBJECTIVE 4

You will be able to determine the meaning of nine (9) out of ten (10) given words by using example clues.

STRATEGY

A. Examples are frequently used to provide a meaning within a context. Words which sometimes indicate this clue are:

like	such as	for example
especially	this	these
other	in that way	

EXAMPLE #1: Methadone is an example of a synthetic narcotic drug.

EXAMPLE #2: Substances like hydrogen and oxygen that cannot be changed into component substances are called elements.

B. In Example #2 the meaning of "element" is made clear by two clues, an example clue ("like hydrogen and oxygen") and a definition clue ("substances that cannot be changed into component substances"). This combination is common in science books especially, since the writers are eager to emphasize and make certain ideas very clear and precise. In fact, many examples for this practice, as well as others in this unit, were taken from Environmental Health textbooks.

In the following practices, look for the example context clue. Then write your definition of the underlined word (determined by using the clue).

1. We have today many means of communication, especially language, that enable us to reach out to the whole world past and present for ideas worth learning.

   meaning of means of communication: _____

   example of means of communication: _____

2. The boys were lying still, heads down, inert, like dead men except for their loud and broken gasps for air.

   meaning of inert: _____

   example of inert: _____

3. Burning paper is an example of a chemical reaction called combustion.

   meaning of combustion: _____

   example of combustion: _____

4. Grinders, cutters and shredders are examples of devices used to break or cut up solids to such size that they can be returned to the sewage without danger of clogging pumps.

   meaning of grinders, cutters, shredders: _____

   _____

5. Compounds of chlorine such as sodium or calcium hypochlorite have excellent disinfecting properties.

   meaning of compounds of chlorine: _____

   example of compounds of chlorine: _____

6. A controlled catchment is a defined surface area from which rainfall runoff is collected. It may be a roof or a paved ground surface.
   meaning of controlled catchment: _____
   example of controlled catchment: _____

7. Changes in the physical environment change the nature of the biotic community. Environmental changes may be natural, such as seasonal variations in temperature, earthquakes, or diseases.
   meaning of natural environmental changes: _____
   examples of natural environmental changes: _____
   _____

8. In the third stage of digestion, known as the period of intensive digestion, stabilization and gasification, the more resistent nitrogenous materials such as proteins, amino acids and others are attacked.
   meaning of more resistent nitrogenous materials: _____
   _____
   example of more resistent nitrogenous materials: _____

9. The forces of nature are not always helpful to man. Sometimes the wind and the rain destroy his home and damage his harvest. At such times, nature appears to be humanity's enemy.
   meaning of forces of nature: _____
   examples of forces of nature: _____

10. Gnawing damage, fires, and poultry losses are also attributable to domestic rat populations. With these indictments of the rat, it is difficult to account for the tolerance with which its depredations are regarded.

meaning of indictments: _____

example of indictments: _____

Check your answers with the key. How did you do? If you missed more than one, see your instructor. Otherwise, go on to the next objective.

OBJECTIVE 5

You will be able to determine the meanings of nine (9) out of ten (10) given words by using "contrast clues".

STRATEGY

A clue to the meaning of a word can sometimes be found in an opposite word (antonym) or a contrasting idea. In using contrast clues to get an idea of the meaning of a word, you may have to search several sentences in front of and/or behind the word.

EXAMPLE #1: Although Mr. Manson guzzled liquor in great quantities every evening, his sobriety was without question during the business day.

Clue: How does drinking great quantities of liquor usually affect a person? That person becomes drunk. What word indicates that Mr. Manson was not affected in the normal way?

_____

Meaning: The context clue here is although, which shows contrast. From this clue we know that sobriety means "sober" or "not drunk".

EXAMPLE #2: The flaccid condition of his body was unlike that of Jim, who now exercises daily, watches his diet and has become thin and wiry.

Clue: unlike Jim's good physical condition

Meaning: out of shape

EXAMPLE #3: When the light brightens, the pupils of the eyes contract; when it grows darker, they dilate.

Clue: condition is the opposite of contract (to become smaller)

Meaning: become larger

The following sentences contain a nonsense word and a contrast clue to the meaning of that word. Write the clue on the first line. Then write the correct word to replace the nonsense word on the second line.

EXAMPLE: Once I worked alone, but now I have a granbelk.

clue: _____

_____

HINT: The following words are usually clues to contrasting or opposite ideas:

but	meanwhile	although
yet	not withstanding	however
on the contrary	or	on the other hand
nevertheless	otherwise	whereas

1. Peace must be sought; otherwise, clow is inevitable.

clue: _____

_____

2. Although most cafeterias are clean and sanitary, some are blumal.

clue: _____

_____

3. Is the exhibition public or bander?

clue: _____

_____

4. While most people live today in the city, some still live in the wasberg.

   clue: _____

   _____

5. The examination will reveal whether you resp or fail.

   clue: _____

   _____

Each of the following passages contains a "contrast clue". Below each passage write:

(1) the meaning of the underlined word and

(2) the clue that led you to its meaning

6. Running a water treatment plant is not necessarily a <u>lucrative</u> business; however, there are profits other than the financial ones for the communities whom the plant serves.

   meaning of lucrative: _____

   clue: _____

7. The county board was willing to <u>dispense</u> with the bi-weekly report, but they could not do without the sanitarian's monthly report.

   meaning of dispense: _____

   clue: _____

8. When the students were instructed to analyze a sample of wastewater, they thought it was unwise of the instructor to make them do it; later, however, they saw it as a very <u>astute</u> move.

meaning of astute: _____

clue: _____

9. At comfortable room temperature, water diffuses through the skin and evaporates as quickly as it is formed; thus, the skin appears dry. Sensible perspiration, on the other hand, refers to water appearing on the surface of the skin as a result of sweat gland activity.

meaning of sensible perspiration: _____

clue: _____

10. In general, surface waters from streams, lakes or impounding reservoirs are unsafe for human consumption, whereas water that has been properly treated is usually safe to drink.

meaning of human consumption: _____

clue: _____

Did you get nine or more correct? Good! If you missed more than one, see your instructor before going on.

OBJECTIVE 6

You will be able to determine the meaning of nine (9) out of ten (10) given words by using inference clues.

STRATEGY

This kind of context clue is a little more difficult to identify, but is frequently used. You need to learn to "read between the lines" and gather details to figure out the meaning. You will also need to search the context both in front of and behind the unfamiliar word. This type of clue is actually a combination of several types of clues, but there are no specific "give away" words for it.

EXAMPLE #1: Sharon rold her roommate, "I'm though with blind dates forever. This one topped all! What a dull evening! I was bored every minute. The conversation was absolutely vapid!"

Clue: dull evening, bored every minute, through with blind dates

Meaning: dull, uninteresting

EXAMPLE #2: I understand the first problem, but the second is beyond my comprehension.

The clue here is *understand*. It suggests that *comprehension* must mean understanding.

Note that you sometimes have to perform a small operation to get the meaning. In Example 2 you had to change the form of clue word *understand* to *understanding*.

Each of the following passages has an inference clue which will give you an idea of the meaning of the underlined word. Read each sentence carefully, then write the letter of the best answer from the choices given.

1. Because the water supply in this area is sometimes insufficient to last through the dry season, reservoirs have been constructed in which water is stored.

   The word closest in meaning to insufficient is:

   a. more than enough
   b. typical
   c. not enough
   d. polluted

2. "During oogenesis and spermatogenesis, the processes by which male and female gametes are formed, a reduction of chromosomes occurs in each sex cell so that the gametes contain a haploid number of chromosomes."

   The word closest to haploid in meaning is:

   a. greater
   b. huge
   c. fewer
   d. unknown

3. Water is a vital necessity of life. Long before a person starves s/he will die as a result of thirst.

   Meaning of vital: _____

4. People in areas that are plentifully supplied with water take its abundance for granted.

   Meaning of abundance: _____

5. Most of the advances made by mankind can be attributed to the fact that man's errors can be corrected. He is able to rectify his mistakes.

   Meaning of rectify: _____

6. The movie "Rocky" is not a true story; the incidents and characters are entirely fictitious.

   Meaning of fictitious: _____

7. Water-living plants cannot exist on land. Land-living plants cannot exist in water for any length of time, but cannot exist without water. Amphibious forms are adapted to live in both habitats.

   Meaning of habitats: _____

8. And his consecutive games record went on and on. Sick or well, he never missed a game.

   Meaning of consecutive games record: _____

9. "With the greatest weaklings eliminated in the early stages, the subsequent male mortality becomes smaller. Yet in the fourth month the male death rate is more than double that of the female, and in the last two months about thirty per cent higher."

   Meaning of male mortality: _____

10. "Dialogue gives sparkle and life, but it can easily be over-done. Do not employ it for trivialities; do not let it become mere patter. Use it for important and critical encounters."

    Meaning of trivialities: _____

See your instructor upon completion of this section. He or she will check your answers on this part as answers may vary.

OBJECTIVE 7

(1) You will be able to identify reference (pronoun) clues and (2) you will be able to identify the correct referent of given pronouns in nine (9) out of ten (10) sentences.

STRATEGY

Another important context clue is the use of pronouns. Pronouns are words which replace nouns (persons or things). The noun is sometimes called the referent, the word to which the pronoun refers. Very often the referent is in a sentence before. Again, you will need to search the context. (For more explanation of referents, see IRS booklet A-13.)

A. Identify what "they" refers to in each of the following sentences:

1. Many more people now live near the Delaware River. They have built many cities and factories.

   "they" refers to: _____

2. The sewage and the chemicals have changed the water. They have polluted it.

   "they" refers to: _____

3. Fish cannot live in the polluted water. They have all died.

   "they" refers to: _____

B. Be careful to specify the correct referent when you are deciding which noun the pronoun is replacing. The word "they" in sentences 2 and 3 which follow refers to something in sentence 1.

1. All atoms of gold are alike.

2. They have the same kind of nucleus.

3. They have the same number of electrons.

To what does "they" refer?

a. all atoms
b. all atoms of gold
c. gold

C. Remember, pronouns are words that refer to or replace nouns. They are often used to avoid repetition.

In the sentence below, "*its*" is a pronoun. What noun in the sentence is the referent for "*its*"?

Alghough there are fertile valleys, large forests, and a supposed abundance of minerals, the country still has a great deal to do in developing its resources.

"*its*" refers to:

a. the minerals
b. the development
c. the country

D. Write the correct referent (noun) that the underlined pronoun stands for in each of the following passages:

1. Both hail and sleet are solid, frozen forms of precipitation. The former is produced when raindrops freeze as they pass through sub-freezing air layers on their way to earth. The latter is formed when snow flakes melt into rain and then refreeze into sleet.

   To what does the former refer? _____

   To what does the latter refer? _____

2. In this climate, heating systems are unnecessary. Homes are built to keep out sun, which is so warm that midday shoppers often stay on the shady side of the walk in order to avoid it.

   it refers to:

   a. the climate
   b. the midday
   c. the sun
   d. the home

3. About 25 percent of the earth's fresh water supply is stored beneath the surface of the land where it remains for hundreds or thousands of years.

   it refers to:

   a. the surface of the land
   b. the fresh water supply
   c. 25 percent of the earth's fresh water supply

4. Relatively small amounts of nitrogen dioxide will produce large amounts of ozone. This reacts with organic pollutants to yield compounds that cause eye irritation, etc.

   This refers to: _____

5. A hydrochlorinator of this kind can be used with any water system; however, it is especially desirable in systems where water pressure is low and fluctuating.

   it refers to: _____

6. One of the commonly used forms of chlorine is calcium hypochlorite. It is commercially available in the form of soluble power or tablets.

   It refers to: _____

7. If rats lived on wheat, they would need a daily food supply of almost 5,000 tons.

   they refers to: _____

There are 12 practices under this objective. If you got ten or more correct, go on to the last objective. If you missed more than two, see your instructor.

OBJECTIVE 8

You will be able to name two limitations of using context clues in determining word meaning.

STRATEGY

You have learned that the context often gives hints of the meaning of words. However, it is also important to realize that:

(1) the context sometimes has nothing at all to reveal about a word's meaning, and

(2) the context may mislead you about the word's meaning.

A. What does the context of the following sentences lead you to conclude about the underlined words? Is your conclusion correct in each case? (Check with a dictionary after you've made a guess.)

1. "Corbett had lived in this noisome slum for only two weeks, but he would never forget the screaming voices, the angry quarreling, and the fighting that made slum life so unbearable."

   Your intelligent guess at the meaning of noisome:

   _____

2. "He was livid with rage."

   Your intelligent guess at the meaning of livid:

   _____

In these examples the context is a real fooler!

In sentence (1), both the context of the word noisome and also its structure suggest the meaning *noisy*. Upon using a dictionary, however, you will find the meanings *offensive, distasteful, disgusting, ill-smelling*. The word noisome comes from the same root word as annoy and is in no way related to noise.

In sentence (2), did you think *livid* meant *red* or *flushed*? It is a logical "guess" since you have probably seen people turn red with anger. However, the dictionary gives the meanings *lead color, ashen, pallid* and *ghastly*.

B. What help can you get from the context in these sentences?

"The women had an in-depth discussion of philately that lasted well into the night. Their interest in the subject was so keen that they were unaware of the passage of time."

This is an example of a context which provides no clues to the meaning of the word. You must either already know the meaning of philately and then make sense of it in the context, or you must turn to an outside source--a teacher, a knowledgeable friend, or a dictionary.

SELF POST-TEST

Without looking back, name two limitations of using context clues.

1. _____

2. _____

Check your answers with the "Strategy" under Objective 8. If you missed either one, reread the examples under Objective 8 and see your instructor for further explanation if you have questions.

As one teacher has wisely stated,

"Context is a magnificent help---BUT BEWARE!

Here is a chart of guidelines for using context clues. You will probably arrive at some of your own as you read and use this technique.

DO'S AND DON'TS FOR USING CONTEXT
Do rely on context clues: 1. When you have a definite "unmissable clue"--a definition or direct explanation in the same paragraph. 2. When you have "highly reliable clues"--key words as explained in Objectives 2-6. 3. When you only need a general idea of what the word means.
Don't rely on context clues: 1. When you need an exact, definite meaning. (Context clues only give a general idea of the meaning of the word.) 2. When you don't know the meanings of the words nearby. 3. For technical words--key vocabulary which you are expected to know in your program or occupation. 4. When the word is a very important one--a key to the meaning of the whole sentence or paragraph. 5. When you have come across the word many times; if it is common in the materials you're reading, you'll want to learn it's meaning completely for future reading.

APPENDIX A

Part IV

UNITED STATES PUBLIC HEALTH SERVICE FOOD SERVICE SANITATION ORDINANCE

(1962 Recommendations)

An ordinance defining food, potentially hazardous food, adulterated, misbranded, food-service establishment, temporary food-service establishment, health authority, utensils, equipment, etc.; providing for the sale of only unadulterated, wholesome, properly branded food; regulating the sources of food; establishing sanitation standards for food, food protection, food-service personnel, food-service operations, food equipment and utensils, sanitary facilities and controls, and other facilities; requiring permits for the operation of food-service establishments; regulating the inspection (grading, regrading, and placarding)[10] of such establishments; providing for the examination and condemnation of food; providing for the incorporation by reference the compliance provisions of the 1962 Edition of the "United States Public Health Service Food Service Sanitation Ordinance and Code"; and providing for the enforcement of this ordinance, and the fixing of penalties.

Be it ordained by the _____ of the municipality[11] of _____ as follows:

SECTION A. DEFINITIONS

The following definitions shall apply in the interpretation and the enforcement of this ordinance:

1. ADULTERATED shall mean the condition of a food (a) if it bears or contains any poisonous or deleterious subtsance in a quantity which may render it injurious to health; (b) if it bears or contains any *added* poisonous or deleterious substance for which no safe tolerance has been established by regulation, or in excess of such tolerance if one has been established; (c) if it consists in whole or in part of any filthy,

---

[10] Communities which wish to adopt the nongrading form of the ordinance should delete this parenthetical expression. Communities wishing to use the grading form of the ordinance should delete only the parentheses.

[11] Substitute proper legal jurisdiction here and in all similar places throughout the ordinance.

ment; private, public, or nonprofit organization or institution routinely serving food; catering kitchen; commissary or similar place in which food or drink is prepared for sale or for service on the premises or elsewhere; and any other eating or drinking establishment or operation where food is served or provided for the public with or without charge.

12. HEALTH AUTHORITY[13] shall mean the health authority of the municipality[14] of _____ or his designated representative.

13. KITCHENWARE shall mean all multiuse utensils other than tableware used in the storage, preparation, conveying, or serving of foods.

14. MISBRANDED shall mean the presence of any written, printed, or graphic matter, upon or accompanying food or containers of food, which is false or misleading, or which violates any applicable State or local labeling requirements.

15. PERISHABLE FOOD shall mean any food of such type or in such condition as may spoil.

16. PERSON shall mean an individual, or a firm, partnership, company, corporation, trustee, association, or any public or private entity.

17. POTENTIALLY HAZARDOUS FOOD shall mean any perishable food which consists in whole or in part of milk or milk products, eggs, meat, poultry, fish, shellfish, or other ingredients capable of supporting rapid and progressive growth of infectious or toxigenic microorganisms.

18. SAFE TEMPERATURES, as applied to potentially hazardous food, shall mean temperatures of 45° F. or below, and 140° F. or above.

19. SANITIZE shall mean effective bactericidal treatment of clean surfaces of equipment and utensils by a process which has been approved by the health authority as being effective in destroying microorganisms, including pathogens.

20. SEALED shall mean free of cracks or other openings which permit the entry or passage of moisture.

21. SINGLE-SERVICE ARTICLES shall mean cups, containers, lids, or closures; plates, knives, forks, spoons, stirrers, paddles; straws, place mats, napkins, doilies, wrapping material; and all similar articles which are constructed wholly or in part from paper, paperboard, molded pulp, foil, wood, plastic, synthetic, or other readily destructible materials, and which are intended by the manufacturers and generally recognized by the public as for one usage only, then to be discarded.

---

[13]In jurisdictions where the authority for the enforcement of this ordinance is vested in any agency other than the health department, the proper authority should be substituted for the term "health authority" wherever the term appears in this ordinance.

[14]See footnote 11, page 22.

REFERENCES USED FOR THIS UNIT:

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personal achievement

READING

Learning Word Parts

LEARNING WORD PARTS - ENVIRONMENTAL OCCUPATIONS

		Page
OBJECTIVE 1:	Identify and give the meanings of ten given prefixes	2
	Self Post-Test	7
OBJECTIVE 2:	Identify the meanings of 20 given prefixes	8
	Self Post-Test	10,14
OBJECTIVE 3:	(a) Identify the suffixes in 20 given words and (b) determine from the suffix whether a word is a noun, adjective, or adverb	15
	Self Post-Test	20
OBJECTIVE 4:	Give the meanings of 8 of 10 given suffixes	21
	Self Post-Test	23
OBJECTIVE 5:	Identify the root word in 15 given words	24
	Self Post-Test	29
OBJECTIVE 6:	(a) Recognize known word parts in compound words and (b) use the known word parts to determine the meaning of the compound words	30
	Self Post-Test	31

LEARNING WORD PARTS

A word like evapotranspiration may at first glance seem frustrating and even impossible. But, long words such as evapotranspiration can sometimes be broken down into word parts (evapo - trans - pi - ra - tion) which make them easier to understand and read. Often these long words are nothing more than short words with prefixes and suffixes added on. If you are familiar with the word evapo (an abbreviation for evaporate - to pass off in vapor) you will already have an idea of what the longer word, evapotranspiration, means. Once you learn what the root word, transpir, and the ending tion mean, you will have a clearer idea of the meaning of the whole word. Each of the word parts provides a clue to the meaning of the whole word. Each of the word parts provides a clue to the meaning of evapotranspiration.

In this unit you will learn to identify different parts of words, then the meanings of some of the most commonly used word parts in Environmental Occupations. When you know how to do this you will be able to unlock the meanings of many unfamiliar words as you read.

OBJECTIVE 1

You will be able to identify and give the meanings of at least 10 of the following prefixes:

PREFIX	MEANING
bi-	double, twice, two
centi-	hundred, a hundredth
demi, hemi, semi-	half
equi-	equal
kilo-	thousand
milli-	thousand, a thousandth
mono-	single
multi-	many
poly-	much, many
quadri-	four
tri-	three
uni-	one

STRATEGY

Read the following definition and example carefully. A prefix is a syllable (a part of a word) added to the beginning of a word which changes or alters the meaning of the word.

EXAMPLE:	Prefix		Word or Root		
	poly	+	graph	=	polygraph
	hemi	+	sphere	=	hemisphere

Now that you have an idea of how prefixes work, do the following practices. You may look back at the first paragraphs for meanings, but try to fill in the blanks you know first.

1. Fill in the missing words.

Tricycle

A vehicle with _____ wheels.

Tri- means _____.

Bicycle

A vehicle with _____ wheels.

Bi- means _____.

_____ cycle

A vehicle with one wheel.

_____ means _____.

2. A triangle has three sides. How many sides does a quadrangle have? _____

How many feet do the quadrupeds--dogs, cattle, elephants, etc.--have? _____

The prefixes quad-, quadri-, and quadru- mean:

_____

3.

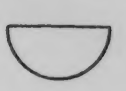
cup of coffee

demitasse of coffee

sphere

hemisphere

circle



semi-circle

Demi-, hemi- and semi- mean _____

4. The base word meter is a length of measure somewhat longer than a yard.

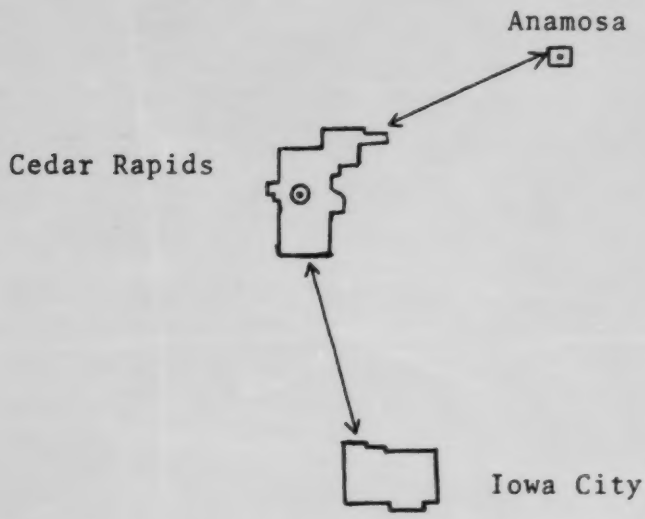
Centimeter is a word made up of a prefix (centi-) and the base word meter. Look back at the list of prefixes and their definitions (under Objective 1) to find out what centi- means.

A centimeter is a _____ of a meter.

centi- means _____

5. Anamosa and Iowa City are of equal distance from Cedar Rapids. In other words, Anamosa and Iowa City are _____ distant from Cedar Rapids.

The al in equal is dropped and replaced by _____ in the prefix equi-.



6. Polygamy is illegal in the United States; only monogamy is legal. That is, one person's being married to two or more (many) people at one time is illegal; one person may be legally married to only one person at a time.

A polygraph, often called a "lie detector" measures the changes in several (many) of the body's processes at the same time.

A polyglot speaks several (many) languages.

Comedians who work alone (one person speaking) give monologues.

A person who speaks in a single (one) tone is said to use a monotone.

poly- means _____

mono- means _____

7. The prefix multi- has a similar meaning to poly-.

multi-colored = something that has many colors

multimillionaire = someone who has millions of dollars

8. Match the meanings in Column 2 to the prefixes in Column 1.

COLUMN 1	COLUMN 2
_____ mono-	a. double, twice, two
_____ bi-	b. hundred, hundredth
_____ uni-	c. half
_____ centi-	d. equal
_____ tri-	e. thousand
_____ milli-	f. thousand, thousandth
_____ multi-	g. single, one
_____ demi, hemi-, semi-	h. many
_____ quad-	i. much, many
_____ equi-	j. four
_____ poly-	k. three
_____ kilo-	l. one

SELF POST-TEST

Cover your work for all previous strategies; write the meaning of each of the following prefixes:

uni-

mono-

bi-

tri-

quadri-

demi-, hemi-, semi-

centi-

milli-

kilo-

poly-

equi-

Did you get 9 or more of the above meanings correct? Good! If you missed more than 2, see your instructor for other activities to learn these prefixes.

OBJECTIVE 2

You will be able to identify the meanings of at least 16 of the 20 prefixes in parts A and B of this objective.

PREFIX	MEANING
anti-, contra-	against, opposite, opposed to
co-, com-	together, with
de-, dis-	separate take away from
epi-	upon, on, among
hydro-	water
micro-	very small
peri-	around
post-	after, behind
pre-	before, in front of
re-	back, again, over again
sub-	under
trans-	across, through, beyond, from one place to another

STRATEGY

These prefixes are frequently used in material you will read in studying Environmental Occupations. Their most commonly used definitions are given. Study the prefixes and their meanings before you go on to the practises.

CAUTION: These letters at the beginning of a word are not always prefixes. They are sometimes a part of the base word, as in the word substance. You should always examine a word carefully to determine first,

if it has a prefix, and secondly, what that prefix may mean. (Note that some of the prefixes have more than one definition listed.) But most importantly, you should look at the sentence the word is used in to see if the definition you have determined by word analysis fits.

1. The following words contain prefixes you should become familiar with. In each of the sentences below, select one of these words to replace the underlined word or words. (Use the prefixes for clues.) Write the letter for that word in the blank that follows the sentence.

a. recirculate	d. prechlorinate	g. advocate
b. submerge	e. anti-women	h. contradict
c. permeate	f. transcend	i. subsurface

____ 1. Males who are against women tend to

____ 2. oppose their own argument when they date girls.

____ 3. Is putting the instruments under boiling water enough to sterilize them?

____ 4. The cold weather could not pass through her warm clothing.

____ 5. It is important to apply chlorine to water or wastewater before any treatment.

____ 6. It is desirable to use pump circulation to get a fluid moving back into the incoming flow of water.

____ 7. The new system of underdrains will remove excess water under the soil's surface.

____ 8. Meditation is supposed to help a person go beyond his/her natural state of being.

2. Match the word in Column A with its meaning in Column B by placing the letter of the correct meaning in the blank that precedes it. Use the prefixes as clues in determining word meanings. Do the ones you recognize easily first.

COLUMN A	COLUMN B
1. ____ anticorrosion	a. chemical used to bind elements together
2. ____ aeration	b. layer put on beforehand
3. ____ precoat	c. scattering and mixing separately
4. ____ dispersion	d. disease spread amongst the people
5. ____ coagulant	e. treatment to reduce or eliminate corrosion-producing qualities of water
6. ____ perimeter	f. area around
7. ____ epidemic	g. exposing to an aftertreatment

If you missed more than two of these, check with your instructor before going on.

PART B

You will be able to identify the meanings for at least 8 of the following prefixes:

PREFIX	MEANING
ad-	to, toward, near to
ab-	away from
hyper-	over, above, excessive
hypo-	under, below, deficient
im-, in-	in, into, not
inter-	between
intra-	within

1. Special attention should be given to the following sets of prefixes which are very close in spelling, but opposite in meaning.

   A. hypo-, hyper-

   Fill in the blanks:

   The _____-active child is highly energetic and easily distracted.

   On the other hand, the _____-active child is withdrawn and appears very shy and withdrawn.

B. ab-, ad-

Clue: Think of ad- as "to add to".

Fill in the correct prefix:

_____-sorb means to lead away.

_____-sorb means to draw toward.

She _____-ducted her arm by raising it away from her body.

She _____-ducted it by returning it to or near her side.

These two prefixes (ab- and ad-) are also frequently a part of the base word. When they're part of the base word they're not prefixes. Place a check only in front of the words using ad- or ab- as a prefix. You may use a dictionary to help you determine which are prefixes.

____ advise	____ abdomen
____ adjective	____ ability
____ adhere	____ abductor
____ adjust	____ above
____ adept	____ abhor (to keep away from in scorn or fear)

C. inter-, intra-

An interview is a meeting between two or more people; to intervene is to come between. Intramural sports involve teams within a school.

interstate = between 2 or more states

intrastate = within a state

inter- = _____

intra- = _____

D. im-, (in-)

This prefix has two meanings; you will need to examine the word and the sentence carefully to determine which meaning is correct. First write the two meanings, then fill in the blanks in the sentences below.

im-, in- = (1) _____

(2) _____

An immature student is ___ mature; his inability to cope with problems makes him ____ able to lead others.

To inoculate is to introduce a seed culture ____ a system.

The chemicals are then infiltrated or filtered _____ the water.

SELF POST-TEST

From what you have learned in the above strategy you should now be able to match the following prefixes and their meanings.

____ inter-	a. over, above, excessive
____ intra-	b. under, below, deficient
____ ad-	c. in, into
____ ab-	d. within
____ hyper-	e. between
____ hypo-	f. to, toward, near to
____ im-, in-	g. away from
____ im-, in-	h. not

If you missed any of these, go back over activities A-D before going on.

OBJECTIVE 3

You will be able to (1) identify the suffixes in 20 given words and (2) determine from the suffix whether the word is a noun, adjective or adverb.

STRATEGY

Suffixes are final syllables added to the end of a word which affect both the word's meaning and the way it is used in a sentence. A suffix often tells you what a word does--whether it names or describes.

Though you may not know what a word means, knowing what it does in a sentence will give you some clues about that word.

Here are some clues to help you identify what a word does in a sentence.

EXAMPLE 1: The suffix -al usually indicates an ADJECTIVE (a word which describes or tells something about a noun).

Facial, practical, and *exceptional* are adjectives ending in -al.

EXAMPLE 2: The suffix -ly is usually the sign for an ADVERB. An adverb is a word that describes how, where, when or why something happens.

Clearly, quickly, slowly, happily, and *immediately* are all adverbs ending in -ly.

EXAMPLE 3: Such suffixes as -ion (-tion, -sion), -ence, (-ance), -y, and -ity usually indicate that the word is a NOUN (a word that names a person, place, thing, or idea).

Caution, vision, independence, piracy, and *capacity* are examples of nouns ending with these suffixes.

1. This practice contains words with suffixes that mark them as ADJECTIVES. Four examples are given for each suffix. Give four more examples for each. You may skim one of your textbooks to find examples.

-ial, -al endings	-ic, -ac endings
1. centrifugal	1. graphic
2. chemical	2. metallic
3. environmental	3. microscopic
4. universal	4. epidemic
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____

-ful ending	-ish ending
1. cheerful	1. foolish
2. tactful	2. yellowish
3. helpful	3. selfish
4. dutiful	4. greenish
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____

-ant, -ent endings	-ible, -able endings
1. pollut<u>ant</u>	1. terr<u>ible</u>
2. domin<u>ant</u>	2. digest<u>ible</u>
3. differ<u>ent</u>	3. cap<u>able</u>
4. conveni<u>ent</u>	4. communic<u>able</u>
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____

-ive ending	-ous, -ious endings
1. capt<u>ive</u>	1. caut<u>ious</u>
2. pass<u>ive</u>	2. fam<u>ous</u>
3. prevent<u>ive</u>	3. serr<u>ous</u>
4. decis<u>ive</u>	4. contag<u>ious</u>
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____

2. This practice deals with words with suffixes that mark them as ADVERBS. Four examples are given for each suffix. Give four more examples for each.

-ly ending	-fully ending
1. quickly	1. carefully
2. mildly	2. dutifully
3. slowly	3. cheerfully
4. easily	4. forcefully
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____

-ably, -ibly endings
1. capably
2. possibly
3. forcibly
4. noticeably
5. _____
6. _____
7. _____
8. _____

3. This practice contains words with suffixes that mark them as NOUNS. Four examples are given. Fill in each blank with another example. You may skim one of your textbooks to find examples.

-ist, -or, -er endings	-y, -ity endings
1. chemist	1. turbidity
2. environmentalist	2. acidity
3. chlorinator	3. transmissability
4. examiner	4. topography
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____

-ance, -ence endings	-ion, -tion endings
1. maintenance	1. sedimentation
2. evidence	2. ventilation
3. tolerance	3. sanitation
4. independence	4. dispersion
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____

SELF POST-TEST

Without looking back at any of the practices, underline the suffixes of each of the following words. Place an X in the column that indicates the type of word it is. Some words may be more than one type of word.

	NOUN	ADJECTIVE	ADVERB
1. independence			
2. carefully			
3. brackish			
4. publicity			
5. petition			
6. helpful			
7. misery			
8. inhalation			
9. official			
10. miserly			
11. happily			
12. concurrent			
13. porosity			
14. elegance			
15. serrous			
16. acidity			
17. essential			
18. profession			
19. professional			
20. professionally			

If you made any errors in underlining the suffixes, go back and look at the examples for that suffix. If you missed more than two on the second part of the practice, see your instructor. Otherwise, go on to the next objective.

OBJECTIVE 4

You will give the meanings of at least 6 of the following suffixes:

SUFFIX	MEANING
-scope	instrument for visual examination
-ology	study of
-phobia	fear
-scopy	to examine visually
-able	capable of
-ize, -ate	to subject to, to make
-itis	disease or inflammation

STRATEGY

In the following words, is -able a prefix or a suffix?

operable inoperable suitable

It is a suffix because it comes at the end of the word.

Complete the activities below to help you learn the meanings of the following suffixes which are frequently used in Environmental Occupations vocabulary. Like the prefixes, they will provide clues to meanings of difficult words.

1. microscope

   telescope — All instruments for observing something or some process

   stethoscope

microscopy

telescopy — The study of the use of or the using of the instrument for observation

stethoscopy

Now fill in the blanks:

-scope means _____

-scopy means _____

2. lithology — the study of mineral composition and structure of rocks

limnology — the study of lakes and rivers

hydrology — the study of waters of the earth in all their states

-ology means _____

3. Explain the meanings of the following words:

a. The suffix -able means able to or capable of

(1) operable _____

(2) inoperable _____

(3) dewaterable _____

(4) transmittable _____

b. The suffixes -ize and -ate mean to subject to or to make

(1) carbonize _____

(2) hydrolize _____

(3) filtrate _____

4. hydrophobia — fear of water

photophobia — fear of light

claustrophobia — fear of close places

-phobia means _____

SELF POST-TEST

Without looking back at your work on the previous strategies, write the meaning of each of these suffixes:

-scopy

-ectomy

-ize

-able

-osis

-phobia

-tomy

-itis

-oma

-ology

-scope

Did you get 9 or more correct? Great!! Now go on to the next objective. If you missed more than 2, see your instructor.

OBJECTIVE 5

You will be able to identify the root words in 15 given words.

DEFINITION:

Root Word = (1) the part of a word that carries the main load of the meaning.

(2) the base of a word to which other parts--prefixes and suffixes--are added.

STRATEGY

Many times words seem "impossible" or unreadable simply because they are long. For example, look at the word just used:

unreadable

Can you see a word within that word? Once you identify the root word (read), the puzzle of this "new" word is practically solved.

Complete the following activities to help you learn to identify root words. Then, look for familiar root words in long words you come across in your reading.

1. Strip the following words down to their root words by removing their prefixes and suffixes:

EXAMPLE: unreadable

(Prefix)		*Root Word*		*(Suffix)*
un	/	read	/	able

(HINT: There might not be both a prefix and suffix in a word. Also, a word might have more than one suffix.)

	ROOT
a. preaeration	_____
b. vaporization	_____
c. pretreatment	_____
d. impracticality	_____
e. inorganic	_____
f. infiltrate	_____

2. Look at the underlined root word in each practice below. Three of the four words under it are related in meaning because they are formed from this root word. Check these words. The first group is done for you.

a. sing a tune	b. steam heat	c. woman or man
X singer	____ unheated	____ manliness
X singable	____ cheat	____ manly
X singing	____ reheat	____ almanac
____ using	____ heater	____ mannish

d. able to operate	e. health care	f. years of age
____ disable	____ careful	____ ageless
____ table	____ careless	____ aged
____ ably	____ scare	____ manage
____ unable	____ caring	____ aging

g. snow and ice

____ deice

____ icy

____ icicle

____ notice

h. sad story

____ sadden

____ saddle

____ sadness

____ sadly

i. kind person

____ unkind

____ kindest

____ kindle

____ kindly

j. talk quietly

____ talkative

____ stalk

____ talker

____ talking

k. hear a noise

____ heart

____ unheard

____ hearing

____ hearers

As you can see, when looking for small words within longer words, you need to:

1. look for the root word, not just a certain group of letters, and
2. remember that sometimes the spelling of the root word is changed before a suffix is added. (Example: In Practice C, man is the root word, but with a suffix the n is doubled --mannish.)

3. A word may have more than one suffix (one added on to another) which makes the word look long and difficult. To "attack" this kind of word, follow these steps:

   (1) Look for and break off the suffixes.

   (2) Determine the meaning of the root word.

   (3) Determine the meaning of the suffixes and how they change the meaning of the root word.

   (4) Check the sentence to be sure your definition "fits".

   Follow these four steps in deciding the meaning of the following words.

   EXAMPLE:

   a. hopelessly: He was hopelessly in love with his best friend's girlfriend.

      1) suffix(es): -less, -ly

      2) root word: hope

         meaning: expectation of something good

      3) How is the root word changed by the suffixes?

         -less means "without" and -ly changes the word to an adverb; thus, hopelessly describes the way he loved her--without hope.

      4) Test this definition out in the sentence to see if it makes sense.

   b. evapotranspiration: Evapotranspiration is the process in which water is withdrawn from soil by evaporation.

      1) suffix(es): _____

      2) root word: _____

         meaning: _____

      3) How is the root word changed by the suffixes?

         _____

         _____

4) Does the definition make sense in the sentence?

Yes ____ No ____

c. Identify the root word in the following words:

	SUFFIXES	ROOT WORD
ozonizer	_____	_____
flexibly	_____	_____
infiltration	_____	_____
carelessness	_____	_____
supersaturation	_____	_____
transmittability	_____	_____

SELF POST-TEST

Underline the root word in each of the following words.

1. reclamation
2. regenerated
3. intercellular
4. suitable
5. digestable
6. inequality
7. immobile
8. concurrent
9. carelessness
10. postchlorination
11. acidity
12. microbiology
13. gravitational
14. endurable
15. hydrophobia
16. factually
17. impermeability

When you have completed this test see your instructor. If you got 15 or more correct, you are ready to go on to the next unit.

You will learn the meanings of several root words in your program. Now that you have learned to recognize word parts and the meanings of some of them, you can figure out the meaning of many unfamiliar words.

OBJECTIVE 6

You will be able to (a) recognize known word parts in compound words and (b) use the known word parts to determine the meaning of the compound words.

STRATEGY

Sometimes words are made up of two or more parts that are words which make sense by themselves. We call these compound words.

Read pages 2 and 3 of IRS booklet B-2 (Green) for an explanation of compound words. Do the exercises on those two pages in your head. Please do not write in the booklet.

SELF POST-TEST

A. Copy the compound words in the first column onto a piece of paper. Then, draw a line between the two words that make up the compound.

B. Use the meanings of the two short words in each compound to help you find the correct definition for the compound in Column 2. Write the letter of the definition on your paper next to the compound. An example has been done.

COLUMN 1		COLUMN 2
____	over/load	a. a connection where water from a pump seal could enter a drinking water supply
____ 1.	backwash	b. pipes joined to provide a duct through which fluids flow
____ 2.	wastewater	c. to put too large a load in or on something
____ 3.	oversee	d. to supervise; watch over
____ 4.	backwater	e. a small calendar attached to equipment to indicate the year the last maintenance service was performed
____ 5.	pipeline	f. the increased depth of water upstream from a dam or obstruction
____ 6.	limestone	g. water or waves thrown back by an obstruction of some sort
____ 7.	cross-connection	h. the spent or used water of a community
____ 8.	headwords	i. water below the water table
____ 9.	dateometer	j. a sedimentary rock compound mainly calcium carbonate
___ 10.	groundwater	k. all the structures located at the head of a conduit or canal

Check your answers. If you missed more than one, see your instructor. Otherwise, you are now ready to take the teacher post-test.

REFERENCES USED FOR THIS LEARNING PACKET:

Brown, Mariestelle, An Individualized Communications Program for College and Career, North Iowa Area Community College.

Deighton, Lee, Developing Vocabulary in the Classroom.

Schachter, Norman and Whelan, John K., Activities for Reading Improvement. Steck-Vaughn Co., 1971.

Basic Reading Skills for Junior High School Use, Scott, Foresman, and Company.

personal achievement

READING

Finding Exact Meanings

PRE/POST TEST
FINDING EXACT MEANINGS

Obj. 1

A. Number the following words 1-10 to show their alphabetical order. 80% correct = mastery

____	some	____	leave
____	hope	____	them
____	that	____	alone
____	I	____	to
____	will	____	fly

B. Check where you would look in the dictionary to quickly locate the following words. 80% correct = mastery

	front	middle	back
1. variable	____	____	____
2. telegram	____	____	____
3. envelope	____	____	____
4. numeric	____	____	____
5. grief	____	____	____

Obj. 2

Put an X before each word you would expect to find on a dictionary page that has the two given guide words. 80% correct = mastery

sometimes		symbol	
____	simple	____	stop
____	slip	____	spoil
____	spat	____	seal
____	soil	____	supper
____	soak	____	stamp

Obj. 3 [OMIT FOR BUSINESS]

In each of the five examples, tell which part of the dictionary entry is underlined. 100% correct = mastery

1. lan·guette (lăng'gwĕt) n. [F] Music a thin plate fastened to the mouth of certain organ pipes.

   a. correct spelling and number of syllables (the word itself)
   b. pronunciation of the word
   c. part of speech of the word
   d. origin of the word
   e. meaning of the word

2. pow (pŏ, pou) n. [Scot. and N. Eng.] the poll; the head

   a. correct spelling and number of syllables (the word itself)
   b. pronunciation of the word
   c. part of speech of the word
   d. origin of the word
   e. meaning of the word

3. meg·a·pod (mĕg' ə pŏd') adj. having large feet

   a. correct spelling and number of syllables (the word itself)
   b. pronunciation of the word
   c. part of speech of the word
   d. origin of the word
   e. meaning of the word

4. fink (fĭngk) n. [U.S. Slang] 1. a strikebreaker 2. a labor spy

   a. correct spelling and number of syllables (the word itself)
   b. pronunciation of the word
   c. part of speech of the word
   d. origin of the word
   e. meaning of the word

5. lit·er·a·cy (lĭt'ər ə sĭ) n. state of being literate, possession of education

   a. correct spelling and number of syllables (the word itself)
   b. pronunciation of the word
   c. part of speech of the word
   d. origin of the word
   e. meaning of the word

Obj. 4 [THIS IS OBJ. 3 FOR BUSINESS]

Use the pronunciation key to decide how each word is pronounced. Then check the one of the 3 given words that has the same vowel sound as the first word. 80% = mastery

1.	bush (bo͝osh)	____ bus	____ cook	____ loose
2.	dove (dōv)	____ love	____ soil	____ choke
3.	feign (fān)	____ take	____ fight	____ feel
4.	crepe (krāp)	____ crawl	____ sail	____ peep
5.	id (i͡d)	____ wit	____ wipe	____ ego

PRONUNCIATION KEY

ă pat/ ā pay/ âr care/ ä father/ ĕ pet/ ē be/ ĭ pit/ ī pie/ îr fierce/ ŏ pot/ ō toe/ ô paw, for/ oi noise/ ou out/ o͝o took/ o͞o moon/ th thin/ th this/ ŭ cut/ ûr turn/ yo͞o use/ ə about/ zh pleasure

Obj. 5 [OBJ. 4 FOR BUSINESS]

In each sentence is an underlined word that might have several meanings. Choose the meaning that makes the most sense from the several dictionary meanings given. 80% = mastery

1. I am afraid I will <u>forget</u> my keys.

   a. to cease to remember
   b. to omit or neglect unintentionally
   c. to omit to take, leave behind

2. You will soon come to a <u>fork</u> in the road.

   a. the point at which a road or river divides
   b. an instrument having 2 or more prongs for lifting
   c. a tuning fork
   d. dividing into branches

3. The <u>former</u> was early, while the latter was late.

   a. preceding in time
   b. past or ancient
   c. preceding in order, being the first of two
   d. having held a particular office in the past

4. The robbers took a cool million in <u>ice</u>.

   a. solid water
   b. slang for diamonds
   c. to frost
   d. formality

5. We opened up the house to get some circulation.

   a. not shut, as a door
   b. not closed or shut
   c. unfilled
   d. undecided

Obj. 6 [OBJ. 8 FOR BUSINESS]

Name 3 sources besides a dictionary that help you find the exact meanings of words.

1. _____

2. _____

3. _____

FOR BUSINESS ONLY
OBJ. 5-7

Match the following words with their correct definitions.
80% correct = mastery

____	affect	1.	qualified
____	effect	2.	occurring twice a year
____	eligible	3.	went by
____	illegible	4.	to influence
____	biannual	5.	smallest degree
____	biennial	6.	rented
____	passed	7.	result, to bring about
____	past	8.	occurring every two years
____	leased	9.	not readable
____	least	10.	earlier in time, gone by

ANSWER KEY
PRE/POST TEST
FINDING EXACT MEANINGS

Obj. 1

6	some	5	leave
3	hope	8	them
7	that	1	alone
4	I	9	to
10	will	2	fly

1. back
2. back
3. front
4. middle
5. front

Obj. 2

spat
stop
spoil
supper
stamp

Obj. 3

1. B
2. C
3. E
4. D
5. A

Obj. 4

1. cook
2. choke
3. take
4. sail
5. wit

Obj. 5

1. C
2. A
3. C
4. B
5. B

Obj. 6

1. glossary
2. index
3. footnotes/context

BUSINESS ONLY 5-7

4	affect	8	biennial
7	effect	3	passed
1	eligible	10	past
9	illegible	6	leased
2	biannual	5	least

FINDING EXACT MEANINGS - ENVIRONMENTAL OCCUPATIONS

		Page
OBJECTIVE 1:	A. Locate the appropriate section of a dictionary in which a word is found	
	B. Arrange given words in alphabetical order	2
	Self Post-Test	3
OBJECTIVE 2:	Locate words in a dictionary by using guide words and alphabetical order	4
	Self Post-Test	5
OBJECTIVE 3:	Skim a dictionary entry and identify different parts of the entry	6
	Self Post-Test	9
OBJECTIVE 4:	Use a pronunciation key to decide the correct way to pronounce a word	12
	Self Post-Test	13
OBJECTIVE 5:	Choose the correct meaning from several meanings stated in a dictionary entry	14
OBJECTIVE 6:	(a) Name three sources besides a dictionary to find exact meanings of words and (b) Identify the exact location of these sources in own text materials	15

FINDING OUT EXACT MEANINGS (Using Glossaries and Dictionaries)

As you read, you will come across words for which your skills in examining word parts and/or using the context are not enough help when you need to know the exact meaning of a word. The purpose of this unit is to help you become aware of different sources for looking up new words and to help you learn how to use those sources.

Contrary to ideas you may have formed in grade school, a dictionary is not just a tool for boring drills and "copy-work". Instead, the dictionary is the most reliable source you can turn to if you want to learn or confirm your hunches about the meaning of a word. In addition to pronunciation and definitions, many dictionaries give information about the history of a word, synonyms (other words that mean the same thing), and antonyms (words opposite in meaning). Sample phrases and sentences also make the meanings of words clearer. All of these features help you better understand new or unfamiliar words.

When you learn how to take advantage of the many features of a dictionary and use it frequently, your vocabulary will improve in your classes and you will strengthen your power to keep your vocabulary growing for life.

OBJECTIVE 1

A. You will be able to quickly locate the appropriate section of the dictionary in which a word is found.

B. You will be able to arrange given words in alphabetical order.

STRATEGY

1. Read IRS Booklet A-23, "Locating Words in a Dictionary", pages 2-3 only.

2. Place these words in alphabetical order on the basis of their first letters:

   vermin, permit, sewage, establishment, ordinance

   1) _____ 4) _____

   2) _____ 5) _____

   3) _____

3. Place the two words in each of the following sets in alphabetical order:

   1) vermin - ventillation _____ _____

   2) dissolve - decompose _____ _____

   3) flocculation - flocculator _____ _____

   4) aerobic - anaerobic _____ _____

   5) sulfide - sulfate _____ _____

Check your answers. If you missed any of these pairs or any item on Practice 2, see your instructor before you go on.

4. Where would you look in the dictionary for these words? Put an X for each word on the line under the correct heading--Front (A-H), Middle (I-R), Back (S-Z).

	FRONT (A-H)	MIDDLE (I-R)	BACK (S-Z)
(a) contour	_____	_____	_____
(b) mulch	_____	_____	_____
(c) sediment	_____	_____	_____
(d) erosion	_____	_____	_____
(e) urban	_____	_____	_____
(f) suburbia	_____	_____	_____
(g) sanitary	_____	_____	_____
(h) landfill	_____	_____	_____
(i) watershed	_____	_____	_____
(j) acidity	_____	_____	_____
(k) landscape	_____	_____	_____
(l) drainage	_____	_____	_____
(m) lagoon	_____	_____	_____
(n) density	_____	_____	_____
(o) topography	_____	_____	_____
(p) chemist	_____	_____	_____

Check your answers with the answer key. Did you get all of them correct? Great! If you missed more than one (1), see your instructor.

OBJECTIVE 2: Using Guide Words

You will be able to locate words in a dictionary by using guide words and alphabetical order.

STRATEGY

Read IRS Booklet A-23, "Locating Words in a Dictionary", pages 5-6. Do the exercises on those pages in your head.

PRACTICE 1: Locating Words in a Dictionary

In each box below, put an X before each word that you would expect to find on a dictionary page that has the guide words shown at the top of the box.

abdomen	arthritis
____ abdominal	____ atonic
____ axilla	____ abcess
____ anemia	____ amenorrhea
____ alcoholism	____ atrium
____ adrenal	____ appendicitis

chlorine	coning
____ composite	____ congenital
____ coagulent	____ cross-connection
____ colloids	____ compound
____ chlororganic	____ clarifier
____ chloramine	____ conventional

lineal	millimicron
____ launders	____ microorganism
____ inorganic	____ mesophilic
____ media	____ molar
____ liquifaction	____ molecule
____ loading	____ nutrient

sewage	stasis
____ sanitary	____ septic
____ stabilize	____ screen
____ sludge	____ respiration
____ shredding	____ storm sewer
____ supernatent	____ spring

Check your answers. If you missed more than two, see your instructor. Otherwise, go on to the next objective.

OBJECTIVE 3

You will be able to skim a dictionary entry and identify different parts of the entry in 8 out of 10 examples.

STRATEGY

Each word listed in a dictionary has a variety of information that goes with it. The word and all its information is called AN ENTRY.

Learn the different parts of a dictionary entry.

A B C D
re·tain (ri-tān') *v.* [ME < OF < L *re-back + tenere* to hold]

1: to hold on, keep in possession 2: to keep in a fixed state or condition 3: to continue to have or hold in
E [to retain heat] 4: to continue to practice or use 5: to keep in mind 6: to hire or arrange in advance for the services of

A. The first thing to appear in a dictionary entry is the word itself in its correct spelling, and after divided into syllables. Re·tain is shown in two syllables.

B. The second thing listed in a dictionary entry is the pronunciation of the word. This part of the entry, when used with the pronunciation key (which you will study more closely in the next objective) will tell you how to pronounce the word. It will give you not only the sound of the letters, but the number of syllables in the word and which syllable(s) is/are accented.

C. The third part of the entry indicates part of speech. If a word may be more than one part of speech (such as run--*verb* - Run to the store. and run--*noun* - I got *a* run in my hose.), both symbols will be given (*v.* verb and *n.* noun). Other parts of speech are as follows on the next page.

adj. - adjective

adv. - adverb

prep. - preposition

conj. - conjunction

art. - article

pron. - pronoun

A	B	C	D
re·tain	(ri-tān')	*v.*	[ME < OF < L *re-back + tenere* to hold]

1: to hold on, keep in possession 2: to keep in a fixed state or condition 3: to continue to have or hold in [to E retain heat] 4: to continue to practice or use 5: to keep in mind 6: to hire or arrange in advance for the services of

D. The next part of the entry is the origin of the word, or where the word came from. In the example above you see ME < OF < L. This means the word came to us from Middle English, and before that the word was Old French, and before that it had a Latin base. The explanation of these abbreviations is in the front of the dictionary.

C and D are reversed in some dictionaries.

E. The last part of a dictionary entry is the actual meaning of the word. Often a word will have more than one meaning, and these will be listed in the order they are most frequently used. In other words, the first meaning listed would be a much more common use of the word than the tenth meaning listed.

NOTE: When you use a dictionary, you usually don't need to know all the information given in an entry. By knowing which part of the entry contains the information you need, and by looking directly at that part of the entry, you can save yourself a great deal of time and confusion.

EXERCISE

Below are 5 dictionary entries. On your paper, answer the questions asked about each entry.

1. sa·voy (s ə voi') n. [Fr. *cabbage of* Savoy] a kind of cabbage with crinkled leaves and a compact head

   Copy the pronunciation: _____

2. scraw·ny (skrô' nē) adj. [Scand.] 1: very thin; skinny and bony 2: stunted or scrubby

   Copy the part of speech: _____

   What does that stand for? _____

3. skein (skan) n. [ME *skeyn* < MFr.] 1: a) a quantity of thread or yarn wound in a coil b) something like this, as a coil of hair 2: a flock of wild fowl

   Copy the origin of the word: _____

   How many syllables does the word have: _____

4. stel·lar (stel' ə r) adj. [LL *stellaris* < L. *stella*] a star 1: of the stars or a star 2: like a star, as in shape 3: by or as by a star performer; excellent, outstanding 4: leading; chief a *stellar* role

   What is the second meaning of the word? _____

   Copy the pronunciation of the word: _____

5. ten·et (ten' it) n. [L., *he holds* < *tenere*] a principle, doctrine, or belief held as a truth, as by some group

   How many syllables does the word have? _____

   What part of speech is it? _____

   What does the word mean? _____

SELF POST-TEST

For the following ten questions write on your paper which part of the entry is underlined.

1. Kob (käb) n. [< native name in Niger-Congo area, as in *Wolof Koba*] an orange-red antelope of SE Africa

   a. correct spelling and number of syllables (the word itself)
   b. pronunciation of the word
   c. part of speech of the word
   d. origin of the word
   e. meaning of the word

2. in·sure (in shoor') v. [ME. *ensuren*] 1: to contract to be paid or to pay money in the case of loss of (life, property, etc.); take out or issue insurance on (something or someone) 2: to give or take out insurance

   a. correct spelling and number of syllables (the word itself)
   b. pronunciation of the word
   c. part of speech of the word
   d. origin of the word
   e. meaning of the word

3. lei (lā) n. [Haw.] in Hawaii, a wreath of flowers and leaves, generally worn about the neck

   a. correct spelling and number of syllables (the word itself)
   b. pronunciation of the word
   c. part of speech of the word
   d. origin of the word
   e. meaning of the word

4. mome (mōm) n. [< ?] a blockhead, fool

   a. correct spelling and number of syllables (the word itself
   b. pronunciation of the word
   c. part of speech of the word
   d. origin of the word
   e. meaning of the word

5. mon·e·tize (män' ə tīz) v. [< L. *moneta* a mint + ize] 1: to coin into money 2: to legalize as money

a. correct spelling and number of syllables (the word itself)
b. pronunciation of the word
c. part of speech of the word
d. origin of the word
e. meaning of the word

6. o·men (ō' mən) n. [L. < OL. *osmen*] a thing or happening supposed to foretell a future event, either good or evil; augery

a. correct spelling and number of syllables (the word itself)
b. pronunciation of the word
c. part of speech of the word
d. origin of the word
e. meaning of the word

7. or·gan·ist (ôr' gə nist) n. [< MFr. or ML.] one who plays the organ

a. correct spelling and number of syllables (the word itself)
b. pronunciation of the word
c. part of speech of the word
d. origin of the word
e. meaning of the word

8. per·i·lune (per' ə lōon) n. [< peri + lune] the point nearest to the moon in the elliptical orbit of a man-made satellite in orbit around it

a. correct spelling and number of syllables (the word itself)
b. pronunciation of the word
c. part of speech of the word
d. origin of the word
e. meaning of the word

9. pied (pīd) adj. [ME *pyed*, orig. black and white like a magpie] 1: covered with patches or spots of two or more colors; piebald; variegated 2: wearing a garment of this description

a. correct spelling and number of syllables (the word itself)
b. pronunciation of the word
c. part of speech of the word
d. origin of the word
e. meaning of the word

10. plex·i·form (plek' sə form) adj. [< plexus + -form] like, or in the form of, a plexus or network; complex

a. correct spelling and number of syllables (the word itself)
b. pronunciation of the word
c. part of speech of the word
d. origin of the word
e. meaning of the word

OBJECTIVE 4: Using a Dictionary for Pronunciation

You will be able to use a pronunciation key to decide the correct way to pronounce a word.

STRATEGY 1

Read IRS Booklet A-5, p. 2-4 "Using a Dictionary for Pronunciation".

PRACTICE 1

Complete Practice 1 on page 5 of IRS Booklet A-5. Check your answers with Card A-5 at the back of the IRS box.

STRATEGY 2

Read IRS Booklet A-5, p. 6, "Using a Dictionary for Pronunciation"

PRACTICE 2

Beside each word in the first column below is the special spelling to show how the word is pronounced. Use the pronunciation key at the bottom of the page to decide how to pronounce each word. If the word has one syllable, decide what other word in that line has the same vowel sound in it, and put an X in the blank before that word. If the word has more than one syllable notice which syllable is stressed. What vowel sound does that syllable have? Put an X in front of the word that has the same vowel sound.

EXAMPLES:

* shirr (shûr)	____ hear	X fur	____ hire
*rotor (rō' tər)	____ sun	X no	____ hot

PRONUNCIATION KEY

ă pat/ ā pay/ âr care/ ä father/ ĕ pet/ ē be/ ĭ pit/ ī pie/ îr fierce/ ŏ pot/ ō toe/ ô paw, for/ oi noise/ ou out/ o͝o took/ o͞o foot/ th thin/ th this/ ŭ cut/ ûr turn/ yo͞o use/ ə about/ zh pleasure

1.	aeration (air ā' shun)	___ key	___ fry	___ gray
2.	-stasis (stā' sis)	___ sweet	___ grape	___ suit
3.	foist (foist)	___ coil	___ toad	___ mouth
4.	elutriation (ē lo͞o' trē ā shŭn)	___ must	___ rude	___ roll
5.	poly- (pŏl' ē)	___ fed	___ bone	___ hot
6.	weir (wēr)	___ wide	___ chest	___ feet
7.	hyper (hī' per)	___ wipe	___ wet	___ clean
8.	aerobic (air ō' bick)	___ coat	___ tent	___ need
9.	facultative (făk' ŭl tā tĭv)	___ game	___ fast	___ bend
10.	sludge (slŭj)	___ tune	___ would	___ cup
11.	bioassay (bī' o ăs sā)	___ hut	___ time	___ ruin
12.	coning (kōn' ing)	___ born	___ cone	___ shop
13.	cache (kăsh)	___ ball	___ lad	___ rain
14.	density (dĕn' sĭt tē)	___ her	___ team	___ red

PRONUNCIATION KEY

ă pat/ ā pay/ âr care/ ä father/ ĕ pet/ ē be/ ĭ pit/ ī pie/ îr fierce/ ŏ pot/ ō toe/ ô paw, for/ oi noise/ ou out/ o͝o took/ oo foot/ th thin/ th this/ ŭ cut/ ûr turn/ yo͞o use/ ə about/ zh pleasure

Did you get 12 or more correct? Good. If not, see your instructor before going on.

OBJECTIVE 5: Using a Dictionary to Get Meaning

You will be able to choose the meaning that makes the most sense in a given sentence from several meanings stated in a dictionary entry.

STRATEGY

Read IRS Booklet A-17, "Using a Dictionary to Get Meaning", pages 2, 3, 5.

PRACTICE

Complete the practices on pages 4, 6, and 7. Check your answers with Card A-17 at the back of the IRS box.

If you got 27 or more correct, go on to the next unit. If you missed more than three (3), see your instructor.

OBJECTIVE 6

You will be able to name three sources besides a dictionary which help you find exact meanings of words and identify the location of these sources in materials used in your vocational program.

STRATEGY

1. This puzzle will tell you the name of another source you can use to find an exact word meaning. Read the phrases below. Each one tells about a term in Environmental Health that is important for you to know. (Letters c and f are thrown in for good measure. See if you can figure them out.) The first letter will help you. Write the word in the blanks. You may use a dictionary.

   a. the study of water
      *
      H _ _ _ _ _ _ _ _ _

   b. a substance consisting of atoms of the same atomic number
      *
      E _ _ _ _ _

   c. What weighs many tons, but falls without making a sound?
      *
      S _ _ _

   d. instrument for looking at miniature objects
      *
      M _ _ _ _ _ _ _ _ _ _

   e. quantity of matter; weight
      *
      M _ _ _

   f. What planet do we see more often than any other planet?
      *
      E _ _ _ _

g. a specialist in public health

S _ _ _ _ _ _ _ _ _ _

h. fear of water

H _ _ _ _ _ _ _ _ _ _ _

Now look at the starred (*) blanks. They spell the answer to this question: What is the closest place to look up the meaning of a word found in a textbook?

— — — — — — — —

(Clue: A list of words and their meanings. It is usually found at the back of a book. See a sample glossary on page 18.)

2. One of the first things you should check when you get a textbook for one of your classes is whether or not it has a glossary.

Use a glossary in one of your texts or the one in Appendix A (at the end of this packet) to answer the following questions:

a. Words are listed in _____ order.

Yes, alphabetical order is correct.

b. An entry for a word usually gives ___ (number) definitions.

c. Definitions for the words are (choose one):

(1) general
(2) specifically related to the subject you're reading about

Did you answer that there is usually one definition? Though the word may have several possible definitions, the glossary usually lists only the specific meaning as related to the subject you're reading about.

3. There are other ways of using your book to find out the precise meanings of words. These ways are reviewed below.

   a. Index

      This is usually located at the very end of a book. It tells you on what page (or pages) you can find specific information the book contains. A good index lists every subject that is discussed in the book. It does not, however, give definitions for words. (For further explanation of an index, see IRS booklet A-25.)

   b. Footnotes and Context

      Many times the author gives the definition for a technical word* on the same page, as is being done in this sentence. Sometimes, the authors include the meanings of words within the text material. Pay attention to the style and color of the print. These clues all save you from having to interupt your reading further by turning to the back of the book or looking the word up in the dictionary. If the word is written in dark, heavy print, it is usually very important to your understanding of the paragraph. If the definition for a word is not given on the same page, check the glossary or the index at the back of your book.

4. The rule of thumb is to look for the closest available source to the paragraph you are reading for looking up the meaning of a word. Place these sources in order of their closest location:

   glossary, dictionary, index, footnotes/or context

   1) _____

   2) _____

   3) _____

   4) _____

* a word related directly to a particular subject area.

APPENDIX A

ENVIRONMENTAL OCCUPATIONS GLOSSARY

GLOSSARY OF RADIOLOGICAL HEALTH TERMS

absorption Transformation of radiant energy into other forms of energy when passing through a material substance.

alpha particles Charged particles emitted from the nuclei of some atoms and having a mass of four units and two-unit positive electric charges. They are composed of two neutrons and two protons.

atoms The chemical units of which all matter is made. The atom may be defined as the smallest particle of an element which is capable of entering into a chemical reaction.

atomic mass The mass of an atom of an element compared with one-sixteenth the mass of an oxygen 16 atom.

atomic number Number of protons in the nucleus, and hence the number of positive charges on the nucleus. Also the number of electrons outside the nucleus of a neutral atom. Symbol: Z.

atomic radiation Radiation produced by energy changes in atomic nuclei or atomic electron clouds: ionizing radiation.

background The counting rate or the ionizing radiation produced by cosmic radiation and naturally occurring trace amounts of radioactive elements.

beta particle Charged particle emitted from the nucleus and having a mass and charge equal in magnitude to those of the electron.

betatron A machine used to accelerate electrons.

binding energy The energy that holds the nucleus together; it is quantitatively related to the difference in mass of the separate component parts and the actual mass of the nucleus.

chain reaction Any chemical or nuclear process in which some of the products of the process are instrumental in the continuation or magnification of the process.

curie Standard measure of radioactive decay; the quantity of any radioactive nuclide in which the number of disintegrations per second is 3.700×10^{10}.

critical In nuclear-science usage, a term used to specify the mass, arrangement, or condition of a quantity of fissionable material such that it can sustain a chain reaction, e.g., a critical mass or a critical assembly. Prompt critical is capable of sustaining a chain reaction without the aid of delayed neutrons.

criticality The attainment of a self-sustaining fissionable reaction.

REFERENCES USED FOR THIS LEARNING PACKET:

Individualized Reading Skills Program, Houghton Mifflin Co., Geneva, Illinois, 1974.

Herber, Harold, Teaching Reading in Content Areas, Prentice-Hall, Inc., New Jersey, 1970.

Karlin, Robert, Teaching Reading in High School, Bobbs-Merrill Company, Inc., 1964.

ANSWER KEY
FINDING EXACT MEANINGS
ENVIRONMENTAL OCCUPATIONS

Obj. 1

2. 1) establishment
   2) ordinance
   3) permit
   4) sewage
   5) vermin

3. 1) ventilation vermin
   2) decompose dissolve
   3) flocculation flocculator
   4) aerobic anaerobic
   5) sulfate sulfide

4.

a.	F	i.	B
b.	M	j.	F
c.	B	k.	M
d.	F	l.	F
e.	B	m.	M
f.	B	n.	F
g.	B	o.	B
h.	M	p.	F

Obj. 2

abdominal	amenorrhea	composite	congenital
anemia	appendicitis	coagulent	compound
alcoholism		colloids	clarifier
adrenal		chlororganic	
media	microorganism	stabilize	screen
liquifaction	mesophilic	sludge	spring
loading		shredding	

Obj. 3

1. (sə voi')
2. adj., adjective
3. [ME skeyn MFr], 1
4. like a star, as in shape, (stel'ər)
5. 2, noun, a principle, doctrine, or belief held as a truth, as by some group.

Self Post-Test

1.	C	6.	A
2.	A	7.	E
3.	E	8.	B
4.	D	9.	C
5.	B	10.	D

Obj. 4

1.	gray	6.	feet	11.	time
2.	grape	7.	wipe	12.	cone
3.	coil	8.	coat	13.	lad
4.	must or rude	9.	fast	14.	red
5.	hot	10.	cup		

Obj. 5

See supplementary materials

Obj. 6

1. a. hydrology
   b. element
   c. snow
   d. microscope
   e. mass
   f. earth
   g. sanitarion
   h. hydrophobia

GLOSSARY

2. a. alphabetical
   b. one
   c. 2
4. footnotes/or contest
   glossary
   indes
   dictionary

personal achievement

READING

Mastering Technical Vocabulary

Revised by Janet R. Swinton from Ellen Lamar Thomas and H. Alan Robinson, *Improving Reading in Every Class: A Sourcebook for Teachers;* copyright by Allyn and Bacon, Inc., 1972, pp. 297-304. Reprinted with permission. Some word changes have been made for easier reading.

PRE/POST TEST
MASTERING TECHNICAL VOCABULARY

STRATEGY 1

List at least three (3) ways an author may alert you to important terms in your text.

1. _____

2. _____

3. _____

STRATEGY 2

List at least eight (8) things to do to learn a new technical term.

1. _____ 5. _____

2. _____ 6. _____

3. _____ 7. _____

4. _____ 8. _____

STRATEGY 3

Explain what the "divided page glossary" is, and how it may help you learn new terms.

STRATEGY 4

Explain what a "cover card" is, and how it may help you learn new terms.

STRATEGY 5

Explain how using your auditory and motor channels help you remember new terms.

STRATEGY 6

Mark the following statements True or False

____ Your greatest time for forgetting is within 24 hrs. after you first heard something.

____ It is a good idea to review a previous assignment immediately before going on to a new assignment.

____ It is better to study an assignment once, for a large amount of time, then several times for shorter amounts of time.

STRATEGY 7

Explain why you should set your own goals for learning new vocabulary.

ANSWER KEY
PRE/POST TEST
MASTERING TECHNICAL VOCABULARY

STRATEGY 1

1. heavy type
2. italics
3. colon, also underlining

STRATEGY 2

any 8 of the following

read to understand
look for familiar word parts
reread
study the examples
make up counter examples
be active with your pencil
use your index
self-recite
review
use your new words

STRATEGY 3

Divided page glossary is a form used to make your own glossary, with terms written on one side of the page and their meanings on the other. It is an orderly way to collect, store, and learn new terms.

STRATEGY 4

A cover card is simply a card used to cover up meanings or terms to check your memory when you are trying to learn terms. It helps you concentrate on what you are studying.

STRATEGY 5

By using your sight, voice, hearing, and muscles to study a word you learn the word through a variety of senses and therefore learn the word better.

STRATEGY 6

T, T, F

STRATEGY 7

By setting your own goals, what you learn is meaningful to you, and applies directly to your needs.

MASTERING VOCABULARY

Here's a method that can help you lift your vocabulary well above its present level. It's tailored to your individual preferences. You decide the words you want and need. You collect them when time is available, and not when it isn't. You set your own goals and move toward them as you wish. This method will help you not only learn, but also remember the meanings of new vocabulary words.

HOW TO MASTER THE VOCABULARY OF ENVIRONMENTAL OCCUPATIONS

As you begin a new course in an Environmental Occupation, it may seem as if you're learning a foreign language. Difficult new technical terms crowd the pages. Easy, familiar words appear with unexpected new meanings. The everyday word between suddenly becomes technical - with an extremely precise meaning! The word exactly takes on a special meaning - even any, if and or.

Rote memory is no longer enough. You must gain a working understanding - learn to use the new "word tools" well and intelligently. Once an unfamiliar word is defined, or a familiar term defined again, the authors will use it again and again, taking it for granted that you will understand it. If you pass over these new terms lightly, word blocks will soon get in the way of your learning. Your reading will become an obstacle course. Learn the new terms thoroughly when they're introduced, and you'll be able to grasp essential new knowledge for use in your courses and work.

Clearly, your vocabluary abilities now become a tremendous asset. Fortunately, learning experts - in actual experiments with students - have researched learning and memory techniques. Some of the strategies suggested here are based on years of experimentation in the psychology of learning.

STRATEGY 1:

HOW WILL THE AUTHOR ALERT YOU TO IMPORTANT TERMS?

When key terms or concepts are first introduced to you in textbooks, the authors usually flag you with a conspicuous signal. The signal used may be **heavy black** (boldface) type, *italics*, color, and <u>underlining</u>. Words signalled in these ways are crucially important "official" Environmental Occupations terms.

In the passage below, the authors make an important term stand out on the page by *italicizing* it.

STOP!
LOOK!
LEARN!

SLUDGE BULKING. The most common problem encountered in the operation of activated sludge plants is *sludge bulking*. A desirable activated sludge is one which settles rapidly leaving a clear, odorless and stable supernatant . . .

<u>ACTIVITY</u>

Scan your own textbook and see how the authors signal important new terms. List those ways on a separate piece of paper.

* * *

Sometimes there is an "explosion" of new words - like the one below - in a very brief space. Yet every new term is basic for your future learning and calls for thorough learning and remembering.

TOOLS FOR FUTURE LEARNING

The *nuclear membrane* separates the *nucleoplasm* (protoplasm of the nucleus) from a zone of less dense spongy protoplasm surrounding and suspending the nucleus, known as the *cytoplasm*.

STRATEGY 2:

TIPS FOR LEARNING DIFFICULT TECHNICAL TERMS

1. Pay attention to each term when it first appears. Read so that you understand the definition--not to memorize, but to get a real understanding of the meaning.

2. Take a new word apart if you can. Do you recognize a familiar part? If, for example, you recognize the familiar prefix *poly-* meaning many, you already have a hold on *polygamist, polygraph, polyglot.* If you recognize the word part *equi-* meaning equal, it helps you unlock *equidistant, equivalent,* and *equation.* The familiar prefix *co-* meaning with or together with, can help you understand *coordinate, cooperate,* and *co-worker.* (See Unit I for more word part clues.)

3. Read and reread as often as is necessary. Reading-once straight-through patterns are not very helpful. Complete stops are called for frequently. Thought time is essential in addition to reading time.

4. The author's definition of a new term is almost always followed by examples. Examine these examples and figure out whether in fact they do follow the definition.

5. Try to think of counter examples, examples which do not come under the definition. When thinking of these, you may find it helpful to change a word or two in the definition.

6. Read the definition as you read all Environmental Occupations materials, pencil in hand. Make notes and create your own examples.

7. Suppose as you are reading the definition of the new term, you come across a technical term you've already met in the course whose meaning you don't remember. We all forget! You have the meaning right at your fingertips through the index for instant access to the original explanation of the forgotten term.

8. As you're working with the new term, try to express its meaning in actual words--your own words.

9. You may find a "List of Some Important Terms to Learn" toward the end of each chapter. You'll want to check your understanding of this list of terms. The terms the authors have selected for this list are crucial. You may also want to check your own list of key words and their meanings.

10. Make an effort to use your new Environmental Occupations terms.

IN SUMMING UP

1. Read to understand.
2. Look for familiar word parts.
3. Reread.
4. Study the examples.
5. Make up counterexamples.
6. Be active with your pencil.
7. Use your index.
8. Self-recite.
9. Review.
10. USE YOUR NEW LEARNINGS!

STRATEGY 3:

A. MASTERY OF NEW TERMS

Should you memorize the meanings of new terms? Chances are you won't need to. Memory of the meanings of new words will often come about naturally as you go over the material, reread, do problems. This is not to encourage imprecise half-learning of essential terms. Terms in Environmental Occupations are defined rigorously. It's essential to get strict meanings in mind. Remembering a very close version of what has been said will be a tool in future learning.

B. KEY WORDS SHOULD BE "COLLECTOR'S ITEMS"

Set aside a section of your notebook as an Environmental Occupations Glossary. As you run across each new key term, collect it for your glossary. Keep this record up to date from day to day. Take about two minutes - that's all you'll need - to make each entry.

You may find the "divided page" handy. Make a line down the middle of a page in your notebook. In the Key Term column to the left, record the new word. In the Meaning column to the right, write the meaning carefully.

The divided page is handy when review time comes. The dividing line makes it possible to conceal the meaning completely as you check your understanding of a term later.

Mark the end of each unit - perhaps with a double line. Now when you want to go back and check on the new words you've

studied in a certain unit, you'll know exactly where to find them.

If you were to do nothing more than record the new words you'd met in a unit and then lose your glossary, you would still have an advantage. The muscular act of writing, in and of itself, would have already strengthened your learning.

THE "DIVIDED PAGE"

KEY TERM	MEANING
	Test your understanding by covering this side.

ACTIVITY

Turn to a chapter you are presently studying in one of your course textbooks. Locate and record ten (10) key terms and their meanings in your glossary. Congratulations! . . . you now have the beginnings of a helpful tool. Use it as you read further for class.

STRATEGY 4:

USE THE "MOST POWERFUL STUDY TECHNIQUE"

Students often ask, "How can I retain what I study?" You can learn for the future with the most powerful study technique known to psychologists!

Conceal the right-hand side of your divided page with your hand or with a cover card (index card) and try to express the meaning - not by memory, but with full understanding of what you are saying. Then lift the card and check. Continue checking until you have full understanding. Mark items that are especially difficult, and double-check these next time.

You'll find a cover card handy in other ways. Using a card to work through chapters as you review is often more effective than rereading. You can reread materials and dream all the way through. The cover card forces you to concentrate as you struggle to recall what's underneath.

STRATEGY 5:

USE YOUR SENSES FOR FASTER, FIRMER LEARNING

Multisensory study can speed and strengthen your learning. Eyes are just one of your learning channels. Use your eyes only, and you turn on just one-third of your sensory channels for mastering a new term. What other learning channels can you use? Your auditory and motor channels.

"SEE IT!
SAY IT!
HEAR IT!
DRAW IT OR WRITE IT!"

As you study, see the material as you read the word and think about its meaning.

Then say the new term and formulate its meaning aloud or in a whisper. Now you're adding kinesthetic learning. As you form the sounds, the muscles of your throat, tongue, and lips are reinforcing your memory.

And as you say it, hear it. Now you call in hearing, another learning channel.

Draw a figure to illustrate the term or write down its meaning. Now you bring more learning power into play - your motor equipment. Write down just a key word or two in the definition as you express the meaning to yourself. Pencil work helps concentration; it has a "no-doze" effect.

Any writing you have already done - on a scratch sheet or on the divided page - has already reinforced your learning.

"See it! Say it! Hear it! Draw it or write it!" is all-out study - a four-way reinforcement. The variety itself helps you recall. The change of pace - eyes, ears, voice, pencil - keeps you alert and increases the amount you learn.

ACTIVITY

Use the technique you've just read to learn the ten (10) words on your glossary list. When you feel confident that you know the words, see your instructor for a post-test.

STRATEGY 6:

TO RETAIN LONGER, SPACE OUT YOUR REVIEWS

You can remember longer simply by the way you place your reviews. You can place your first review to minimize forgetting. Suppose you read your class assignment today. When will forgetting take its greatest toll? If your forgetting is typical, the greatest loss will be within one day. Arrange your first review to check this drop. Place it from 12 to 24 hours after you study your vocabulary terms. Reinforce immediately, and you will remember much longer. It might be a good idea to review the previous assignment immediately before going on to the new assignment.

A study expert pointed out the "Curve of Forgetting" to military officers returning to academic study after being out of school for several years.

The first student studied one hour on September 30, and six weeks later remembered very little.

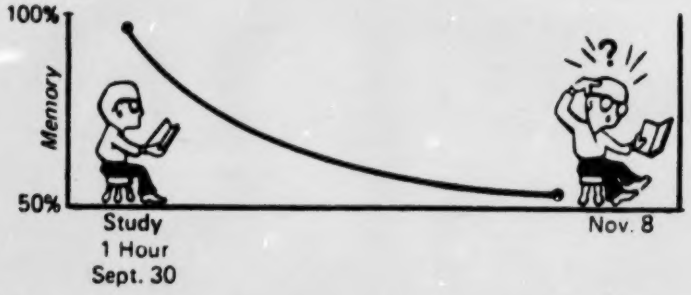


FIGURE 6-7. Curve of forgetting. (Drawing reproduced by permission of Dr. Staton.)

* Thomas F. Staton, *How to Study* (Montgomery, Alabama: Box 6133, 1968), p. 59. The drawings are reproduced with permission.

The second student studied only 30 minutes on September 30, but he spaced out his reviews - 15 minutes on October 1 and 10 minutes more on October 8. On November 8 it took this student just a 5 minute review to bring back what he wanted - with 100% mastery.

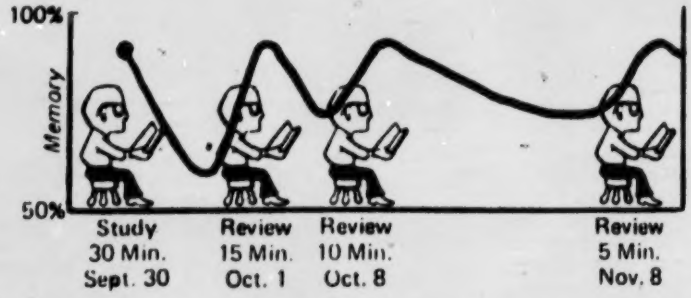


FIGURE 6-8. Spaced reviews. (Drawing reproduced by permission of Dr. Staton.)

Both students studied just one hour, but the one who spaced out his reviews had far better retention.

Your glossary of terms lends itself to spaced reviews. You can have a quick run-through waiting for a friend, riding to school, waiting for a bus, between classes, just before a test.

Take care, though, that your run-throughs don't become unthinking mechanical repetitions. Your instructors hope that as you review your terms and their meanings, you will focus on what the definition is really saying. They sound this warning:

> Though precise understanding is absolutely essential, too much stress on memorization of words may destroy your understanding of the real meanings.

You'll find that spaced-out reviews will pay you high dividends in aspects of Environmental Occupations studies other than vocabulary and in other school courses as well.

LEARN THE NEW TERMS FROM DAY TO DAY! THEY'LL BE YOURS TILL THE LAST DAY OF THE COURSE - AND BEYOND - AS TOOLS FOR GRASPING ESSENTIAL NEW KNOWLEDGE.

ACTIVITY

Review the same ten (10) words you were tested on at one and two weeks from today. During the fourth week, give yourself a quiz to see how much you remember at that point.

STRATEGY 7:

SET YOUR OWN GOALS FOR VOCABULARY

Only you can set goals for yourself! Only you can move toward them!

If you've decided to start a personal word collection, please set goals for yourself as suggested below. You'll want to consider your test score, your own judgement as to what you need, and any suggestions from your teacher.

The goals you set today are only tentative. You may wish to change them as you make progress. Your goals should be realistic. Planning more than you can possibly attain brings only disappointment.

Your teacher will discuss your goals with you.

TO IMPROVE YOUR VOCABULARY	PLANNED	FINISHED
1. How many words do you plan to have in your personal word collection (and really learn) before the end of the month?	___	___
2. Have you decided to collect a definite number of words each day? week? If so, what is your quota?	___	___
3. Some students prefer not to set a daily or weekly quota, but to collect their new words whenever the reading they are doing at the moment lends itself. If this is your decision, indicate by checking here. ___		

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